



PCT

RAW SEQUENCE LISTING

DATE: 09/10/2004

PATENT APPLICATION: US/09/980,758A

TIME: 16:16:37

Input Set : A:\PTO.FG.txt

Output Set: N:\CRF4\09102004\I980758A.raw

3 <110> APPLICANT: ROBERTS, James A.
 4 KELLY, Beth L.
 6 <120> TITLE OF INVENTION: METHODS FOR INCREASING PLANT CELL PROLIFERATION BY
 FUNCTIONALLY

7 INHIBITING A PLANT CYCLIN INHIBITOR GENE

9 <130> FILE REFERENCE: 14538A-45-1

11 <140> CURRENT APPLICATION NUMBER: 09/980,758A

12 <141> CURRENT FILING DATE: 2001-11-13

14 <150> PRIOR APPLICATION NUMBER: PCT/US00/13379

15 <151> PRIOR FILING DATE: 2000-05-15

17 <150> PRIOR APPLICATION NUMBER: US 60/134,373

18 <151> PRIOR FILING DATE: 1999-05-14

20 <160> NUMBER OF SEQ ID NOS: 22

22 <170> SOFTWARE: PatentIn version 3.1

24 <210> SEQ ID NO: 1

25 <211> LENGTH: 408

26 <212> TYPE: DNA

27 <213> ORGANISM: Arabidopsis thaliana

29 <400> SEQUENCE: 1

30 atggcatcaa aaaaagcaag aaaaccaaac cgagccgaaa agaaactcac aagaagctgt 60
 32 ttcaagaaac aagttcctca acacaacaac atcaacacaa gtataactct cgatcaaaca 120
 34 tctacatcta ctattgtctc tacatgttct tcttcatcaa cgactttgtc ttctcctcta 180
 36 gacacaatct actctgttcc ctctccatcc ccagcagcgg tgetgacgtc accaggcggg 240
 38 tggtgtaccc cgaaagccaa gaagtctagg ataccggaga tgetgacgtg tccaccggcg 300
 40 ccgaagaagc aaagggtctc gaaaaactgt gtgttacgac ggagacagat cgttttcttt 360
 42 gctccgcccgg agatagagct cttcttcgtc aacgcacacg atcgatga 408

45 <210> SEQ ID NO: 2

46 <211> LENGTH: 135

47 <212> TYPE: PRT

48 <213> ORGANISM: Arabidopsis thaliana

50 <400> SEQUENCE: 2

52 Met Ala Ser Lys Lys Ala Arg Lys Pro Asn Arg Ala Glu Lys Lys Leu

53 1 5 10 15

56 Thr Arg Ser Cys Phe Lys Lys Gln Val Pro Gln His Asn Asn Ile Asn

57 20 25 30

60 Thr Ser Ile Thr Leu Asp Gln Thr Ser Thr Ser Thr Ile Val Ser Thr

61 35 40 45

64 Cys Ser Ser Ser Ser Thr Thr Leu Ser Ser Pro Leu Asp Thr Ile Tyr

65 50 55 60

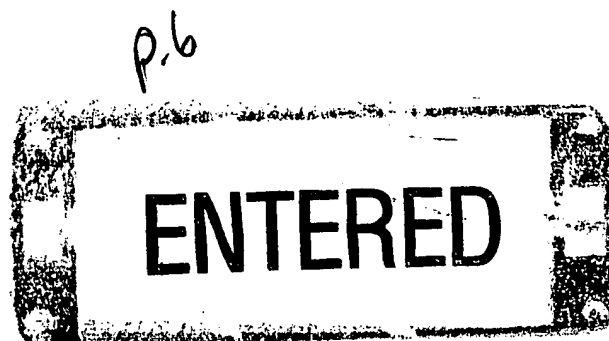
68 Ser Val Pro Ser Pro Ser Pro Ala Ala Val Leu Thr Ser Pro Gly Gly

69 65 70 75 80

72 Cys Cys Thr Pro Lys Ala Lys Lys Ser Arg Ile Pro Glu Met Leu Thr

73 85 90 95

76 Cys Pro Pro Ala Pro Lys Lys Gln Arg Val Ser Lys Asn Cys Val Leu



RAW SEQUENCE LISTING

DATE: 09/10/2004

PATENT APPLICATION: US/09/980,758A

TIME: 16:16:37

Input Set : A:\PTO.FG.txt

Output Set: N:\CRF4\09102004\I980758A.raw

```

77          100          105          110
80 Arg Arg Arg Gln Ile Val Phe Phe Ala Pro Pro Glu Ile Glu Leu Phe
81          115          120          125
84 Phe Val Asn Ala His Asp Arg
85          130          135
88 <210> SEQ ID NO: 3
89 <211> LENGTH: 639
90 <212> TYPE: DNA
91 <213> ORGANISM: Arabidopsis thaliana
93 <400> SEQUENCE: 3
94 ctcgagattt accaaaaaag tttcccaaaa aaacaaaaac atacacaagt ttagatatgg      60
96 atcttgaatt actacaagat ttgtccaaat tcaatttccc aacacccatc aagatccgat      120
98 ccaaaacctc aaaaacaaag aaggacgaag gtgatgacga cgaagatgac ctccgctgca      180
100 gcacaccac atcccaagaa cacaagattc ccgcgcgtcg agactctcca cctcctccgc      240
102 cgagaaaacc ccggccacca ccgtcagcac cgtcggctac ggcggtctcg atgatcagat      300
104 cgtgcaagag gaagctttta gtgtcgactt gtgagataat catgaatcgg gaagagattg      360
106 accgtttctt ctctccgctc tacaatgaga cgtcgactac ggctaaacgg cggagaagtt      420
108 acccttattg ttctcgaaga tgaggcttaa ttcaatattt acattttttt acagttttac      480
110 tggaaatatt gtgaaattaa ttatctgttg gtgttcgggt ttaaataatt ttaatttaat      540
112 tatgaatatg gatggataat tttctgcaac cgcgcatatt aatttcgcat ggagggggtcg      600
114 atgttgtaaa ttgagtaata aatgaaggta aatctcgag      639
117 <210> SEQ ID NO: 4
118 <211> LENGTH: 213
119 <212> TYPE: PRT
120 <213> ORGANISM: Arabidopsis thaliana
122 <220> FEATURE:
123 <221> NAME/KEY: MISC_FEATURE
124 <222> LOCATION: (148)..(148)
125 <223> OTHER INFORMATION: Xaa = any amino acid
128 <220> FEATURE:
129 <221> NAME/KEY: MISC_FEATURE
130 <222> LOCATION: (165)..(165)
131 <223> OTHER INFORMATION: Xaa = any amino acid
134 <220> FEATURE:
135 <221> NAME/KEY: MISC_FEATURE
136 <222> LOCATION: (167)..(167)
137 <223> OTHER INFORMATION: Xaa = any amino acid
140 <220> FEATURE:
141 <221> NAME/KEY: MISC_FEATURE
142 <222> LOCATION: (175)..(175)
143 <223> OTHER INFORMATION: Xaa = any amino acid
146 <220> FEATURE:
147 <221> NAME/KEY: MISC_FEATURE
148 <222> LOCATION: (182)..(182)
149 <223> OTHER INFORMATION: Xaa = any amino acid
152 <220> FEATURE:
153 <221> NAME/KEY: MISC_FEATURE
154 <222> LOCATION: (205)..(205)
155 <223> OTHER INFORMATION: Xaa = any amino acid

```

RAW SEQUENCE LISTING

DATE: 09/10/2004

PATENT APPLICATION: US/09/980,758A

TIME: 16:16:37

Input Set : A:\PTO.FG.txt

Output Set: N:\CRF4\09102004\I980758A.raw

158 <400> SEQUENCE: 4

```

160 Pro Arg Asp Leu Pro Lys Lys Phe Pro Lys Lys Thr Lys Thr Tyr Thr
161 1          5          10          15
164 Ser Leu Asp Met Asp Leu Glu Leu Leu Gln Asp Leu Ser Lys Phe Asn
165          20          25          30
168 Phe Pro Thr Pro Ile Lys Ile Arg Ser Lys Thr Ser Lys Thr Lys Lys
169          35          40          45
172 Asp Glu Gly Asp Asp Asp Glu Asp Asp Leu Arg Cys Ser Thr Pro Thr
173          50          55          60
176 Ser Gln Glu His Lys Ile Pro Ala Val Val Asp Ser Pro Pro Pro Pro
177 65          70          75          80
180 Pro Arg Lys Pro Arg Pro Pro Pro Ser Ala Pro Ser Ala Thr Ala Ala
181          85          90          95
184 Leu Met Ile Arg Ser Cys Lys Arg Lys Leu Leu Val Ser Thr Cys Glu
185          100         105         110
188 Ile Ile Met Asn Arg Glu Glu Ile Asp Arg Phe Phe Ser Ser Val Tyr
189          115         120         125
192 Asn Glu Thr Ser Thr Thr Ala Lys Arg Arg Arg Ser Tyr Pro Tyr Cys
193          130         135         140
W--> 196 Ser Arg Arg Xaa Gly Leu Ile Gln Tyr Leu His Phe Phe Thr Val Leu
197 145          150          155          160
200 Leu Glu Ile Leu Xaa Asn Xaa Leu Ser Val Gly Val Arg Phe Xaa Ile
201          165          170          175
204 Phe Leu Ile Glx Leu Xaa Ile Trp Met Asp Asn Phe Leu Gln Pro Arg
205          180          185          190
208 Ile Leu Ile Ser His Gly Gly Val Asp Val Val Asn Xaa Val Ile Asn
209          195          200          205
212 Glu Gly Lys Ser Arg
213          210

```

216 <210> SEQ ID NO: 5

217 <211> LENGTH: 809

218 <212> TYPE: DNA

219 <213> ORGANISM: Arabidopsis thaliana

221 <400> SEQUENCE: 5

```

222 ctcgagattt accacgagat gtggttgaag agaatggagt tacgacgacg acggtgaaac      60
224 gaaggaagat ggaggaggaa gtggatttag tggaatctag gataattctg tctccgtgtg      120
226 tacaggcgac gaatcgcggt ggaattgtgg cgagaaattc agcaggagcg tcggagacga      180
228 gtgttggtat agtacgacgg cgagattctc ctccggttga agaacagtgt caaatcgaag      240
230 aagaagattc gtcggtttcg tgttgttcta catcggaaga gaaatcgaaa cggagaatcg      300
232 aatttgtaga tcttgaggaa aataacggtg acgatcgtga aacagaaacg tcgtggattt      360
234 acgatgattt gaataagagt gaggaatcga tgaacatgga ttcttcttcg gtggctgttg      420
236 aagatgtaga gtctcgccgc aggttaagga agagtctcca tgagacggtg aaggaagctg      480
238 agttagaaga cttttttcag gtggcggaga aagatcttcg gaataagttg ttggaatgtt      540
240 ctatgaagta taacttcgat ttcgagaaag atgagccact tgggtggagga agatacgagt      600
242 ggggttaatt gaatccatga agaagacgat gatgataatg atgatcattg ttttcaccaa      660
244 agtacttatt atttctcttc tgtaataatc tttgctttga tttttctttt aacaaaatcc      720
246 aaatgtagat atctttctct cgaataatca ataacatgta attcaactaa aaaaaaaaaa      780
248 aaaaaaaaaa aaaaaaggta aatctcgag                                     809

```

251 <210> SEQ ID NO: 6

RAW SEQUENCE LISTING

DATE: 09/10/2004

PATENT APPLICATION: US/09/980,758A

TIME: 16:16:37

Input Set : A:\PTO.FG.txt

Output Set: N:\CRF4\09102004\I980758A.raw

```

252 <211> LENGTH: 203
253 <212> TYPE: PRT
254 <213> ORGANISM: Arabidopsis thaliana
256 <220> FEATURE:
257 <221> NAME/KEY: MISC FEATURE
258 <222> LOCATION: (203)..(203)
259 <223> OTHER INFORMATION: Xaa = any amino acid
262 <400> SEQUENCE: 6
264 Pro Arg Asp Val Val Glu Glu Asn Gly Val Thr Thr Thr Thr Val Lys
265 1 5 10 15
268 Arg Arg Lys Met Glu Glu Glu Val Asp Leu Val Glu Ser Arg Ile Ile
269 20 25 30
272 Leu Ser Pro Cys Val Gln Ala Thr Asn Arg Gly Gly Ile Val Ala Arg
273 35 40 45
276 Asn Ser Ala Gly Ala Ser Glu Thr Ser Val Val Ile Val Arg Arg Arg
277 50 55 60
280 Asp Ser Pro Pro Val Glu Glu Gln Cys Gln Ile Glu Glu Glu Asp Ser
281 65 70 75 80
284 Ser Val Ser Cys Cys Ser Thr Ser Glu Glu Lys Ser Lys Arg Arg Ile
285 85 90 95
288 Glu Phe Val Asp Leu Glu Glu Asn Asn Gly Asp Asp Arg Glu Thr Glu
289 100 105 110
292 Thr Ser Trp Ile Tyr Asp Asp Leu Asn Lys Ser Glu Glu Ser Met Asn
293 115 120 125
296 Met Asp Ser Ser Ser Val Ala Val Glu Asp Val Glu Ser Arg Arg Arg
297 130 135 140
300 Leu Arg Lys Ser Leu His Glu Thr Val Lys Glu Ala Glu Leu Glu Asp
301 145 150 155 160
304 Phe Phe Gln Val Ala Glu Lys Asp Leu Arg Asn Lys Leu Leu Glu Cys
305 165 170 175
308 Ser Met Lys Tyr Asn Phe Asp Phe Glu Lys Asp Glu Pro Leu Gly Gly
309 180 185 190
W--> 312 Gly Arg Tyr Glu Trp Val Lys Leu Asn Pro Xaa
313 195 200
316 <210> SEQ ID NO: 7
317 <211> LENGTH: 626
318 <212> TYPE: DNA
319 <213> ORGANISM: Arabidopsis thaliana
321 <400> SEQUENCE: 7
322 ctcgagatttt acccaaaaat ccaagagaga aaaaaatgag cgagagaaag cgagagcttg 60
324 cagaagaagc ttcaagcaca agcttctcac cactgaagaa aacgaagctt aatgattctt 120
326 ctgattcatc accggactct catgacgtca tcgtcttcgc ggtttcatct tcttccgttg 180
328 cttcgctcggc ggcttttagcg tctgatgaat gttccgttac catcggtgga gaagaaagtg 240
330 atcagtcctc gagtatcagc tccggttggt tcaccagtga atcgaaagaa atcgcggaaga 300
332 acagttcgtc gtttggtgta gatctggagg atcatcaaat cgaaaccgaa accgaaacct 360
334 caacattcat caccagcaat ttcagaaaag agacgagtc agtgagtgag ggtttgggag 420
336 aaacgacaac agaaatggaa tcatcatcgg caacgaagag aaaacaaccg ggggtgagga 480
338 agactccaac ggcggcggag attgaggatt tgttctcgga gctagagagt ccagacgata 540
340 agaagaagca attcatagaa aagtacaact tcgatattgt caatgacgaa ccgcttgaag 600

```

RAW SEQUENCE LISTING

DATE: 09/10/2004

PATENT APPLICATION: US/09/980,758A

TIME: 16:16:37

Input Set : A:\PTO.FG.txt

Output Set: N:\CRF4\09102004\I980758A.raw

626

```

342 gtcgctacaa gtgggatcga ctttaa
345 <210> SEQ ID NO: 8
346 <211> LENGTH: 209
347 <212> TYPE: PRT
348 <213> ORGANISM: Arabidopsis thaliana
350 <220> FEATURE:
351 <221> NAME/KEY: MISC_FEATURE
352 <222> LOCATION: (209)..(209) ✓
353 <223> OTHER INFORMATION: Xaa = any amino acid
356 <400> SEQUENCE: 8
358 Pro Arg Asp Leu Pro Lys Asn Pro Arg Glu Lys Lys Met Ser Glu Arg
359 1 5 10 15
362 Lys Arg Glu Leu Ala Glu Glu Ala Ser Ser Thr Ser Phe Ser Pro Leu
363 20 25 30
366 Lys Lys Thr Lys Leu Asn Asp Ser Ser Asp Ser Ser Pro Asp Ser His
367 35 40 45
370 Asp Val Ile Val Phe Ala Val Ser Ser Ser Ser Val Ala Ser Ser Ala
371 50 55 60
374 Ala Leu Ala Ser Asp Glu Cys Ser Val Thr Ile Gly Gly Glu Glu Ser
375 65 70 75 80
378 Asp Gln Ser Ser Ser Ile Ser Ser Gly Cys Phe Thr Ser Glu Ser Lys
379 85 90 95
382 Glu Ile Ala Lys Asn Ser Ser Ser Phe Gly Val Asp Leu Glu Asp His
383 100 105 110
386 Gln Ile Glu Thr Glu Thr Glu Thr Ser Thr Phe Ile Thr Ser Asn Phe
387 115 120 125
390 Arg Lys Glu Thr Ser Pro Val Ser Glu Gly Leu Gly Glu Thr Thr Thr
391 130 135 140
394 Glu Met Glu Ser Ser Ser Ala Thr Lys Arg Lys Gln Pro Gly Val Arg
395 145 150 155 160
398 Lys Thr Pro Thr Ala Ala Glu Ile Glu Asp Leu Phe Ser Glu Leu Glu
399 165 170 175
402 Ser Pro Asp Asp Lys Lys Lys Gln Phe Ile Glu Lys Tyr Asn Phe Asp
403 180 185 190
406 Ile Val Asn Asp Glu Pro Leu Glu Gly Arg Tyr Lys Trp Asp Arg Leu
407 195 200 205

```

W--> 410 Xaa

```

414 <210> SEQ ID NO: 9
415 <211> LENGTH: 6
416 <212> TYPE: PRT
417 <213> ORGANISM: Arabidopsis thaliana
419 <220> FEATURE:
420 <221> NAME/KEY: MISC_FEATURE
421 <222> LOCATION: (2)..(2) ✓
422 <223> OTHER INFORMATION: Xaa = Leu, Ile or another hydrophobic amino acid
425 <220> FEATURE:
426 <221> NAME/KEY: MISC_FEATURE
427 <222> LOCATION: (3)..(3) ✓
428 <223> OTHER INFORMATION: Xaa = Glu or Asp

```

RAW SEQUENCE LISTING ERROR SUMMARY
PATENT APPLICATION: US/09/980,758A

DATE: 09/10/2004
TIME: 16:16:38

Input Set : A:\PTO.FG.txt
Output Set: N:\CRF4\09102004\I980758A.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:4; Xaa Pos. 148,165,167,175,182,205
Seq#:6; Xaa Pos. 203
Seq#:8; Xaa Pos. 209
Seq#:9; Xaa Pos. 2,3,4,5
Seq#:10; Xaa Pos. 6,7,8,9,10,13,14,18,20,21,23

VERIFICATION SUMMARY

DATE: 09/10/2004

PATENT APPLICATION: US/09/980,758A

TIME: 16:16:38

Input Set : A:\PTO.FG.txt

Output Set: N:\CRF4\09102004\I980758A.raw

L:196 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4 after pos.:144
M:341 Repeated in SeqNo=4
L:312 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:6 after pos.:192
L:410 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:8 after pos.:208
L:445 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9 after pos.:0
L:522 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:10 after pos.:0
M:341 Repeated in SeqNo=10